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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,106	05/05/2005	Kunihiro Ichimura	OPC-C511	7016
7590 George A. Loud, Esquire BACON & THOMAS Fourth Floor 625 Slaters Lane Alexandria, VA 22314-1176		10/07/2009	EXAMINER JOHNSON, CONNIE P	
			ART UNIT 1795	PAPER NUMBER
			MAIL DATE 10/07/2009	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/520,106

Applicant(s)

ICHIMURA ET AL.

Examiner

CONNIE P. JOHNSON

Art Unit

1795

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 5/18/2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-24, 26, 28, 29, 32, 33, 35 and 36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-24, 26, 28, 29, 32, 33, 35 and 36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. The remarks and amendment filed 5/18/2009 have been entered and fully considered.
2. Claims 15-24, 26, 28-29, 32-33 and 35-36 are presented.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 15-16, 18-24, 26, 28-29, 32-33 and 35-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ichimura et al., U.S. Patent No. 4,564,580 in view of Zampini et al., U.S. Patent Publication No. 2002/0051928 A1 and further in view of Nakamura et al., U.S. Patent Publication No. 2002/0028404 A1.

Ichimura teaches a photosensitive resin composition comprising a water-soluble saponified vinyl acetate polymer to which a styrylpyridinium group is attached as shown in column 5, lines 1-20. The polyvinyl acetate in the backbone comprises a vinyloxy group (claim 18). The water-soluble saponified vinyl acetate comprises poly(vinyl alcohol) (claim 23).

The composition also comprises a photopolymerization initiator (col. 9, lines 5-22) and a photocrosslinking agent (col. 10, lines 19-37). The photocrosslinker is representative of an acid-reactive insolubilizing agent and comprises diazo resins

combined with formaldehyde groups, such as 4-amino-4'-ethyldiphenylamine and p-formaldehyde (col. 10, lines 20-37) (claim 19). The photocrosslinker is dissolved in water and is present in an amount of 20 parts per 100 parts of the styrylpyridium polymer (col. 10, lines 35-37 and 60-64) (claim 24).

The composition also comprises an emulsion phase with a hydrophobic polymer (col. 6, lines 5-20) (claim 20) and a photopolymerizable unsaturated compound that is dispersed in an aqueous solution of styrylpyridium polymer, which is dissolved in water (col. 8, lines 5-15) (claim 16). The preparation of the photosensitive composition in column 11 only uses water as the solvent (claims 32 and 33).

Ichimura also teaches that the composition is dried to form a photosensitive resin composition (col. 11, lines 25-30) (claim 26). Ichimura also teaches a method of forming a pattern. The method comprises preparing a resin emulsion composition and coating the film on a screen printing plate. In example 1, the components of the composition are mixed and coated on a screen printing plate, dried and irradiated with light. After exposure, the composition was developed with water to remove the unexposed portion (column 11, lines 19-21) (claim 28). The water used in development is neutral water and therefore has a pH of 7.0 (claim 29). Ichimura does not teach an acid former and sensitizer in the form of particles or sensitizer particles in the composition.

Additionally, Zampini teaches a photosensitive composition comprising polymeric particles. The polyparticles also comprise photoacid generators in the form of particles. The particles have a diameter of up to 1000nm (1.0 micron). The photoacid generator is present in an amount of 0.1 to 15% by weight based on the weight of the

resin (page 8, [0070]). The crosslinker amount is 1 to 80% by weight. Therefore, the photoacid generator is present in an amount of 20 to 35 parts by weight based on 100% of the crosslinker. It would have been obvious to one of ordinary skill in the art to use the photoacid generator particles of Zampini in the composition of Ichimura because Zampini teaches that the photoacid generator forms acid in a sufficient amount to form a latent image (page 8, [0070]).

Nakamura, in analogous art teaches pigment particles with a particle size of 0.05 to 1µm (page 14, [0050]). The pigment particles include phthalocyanine pigments, polymethine and merocyanine pigments, which are electron donors (page 13, [0048]). It would have been obvious to one of ordinary skill in the art to use the pigment particles of Nakamura in the composition of Ichimura because Nakamura teaches the pigment particles are capable of absorbing radiation to improve image-forming performance (page 13, [0046]).

5. Claims 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ichimura et al., U.S. Patent No. 4,564,580 in view of Zampini et al., U.S. Patent Publication No. 2002/0051928 A1 in view of Nakamura et al., U.S. Patent Publication no. 2002/0028404 A1 (all above) and further in view of Morigaki et al., U.S. Patent No. 6,808,865 B1.

Ichimura ('580) teaches a photosensitive resin composition comprising a water-soluble saponified vinyl acetate polymer to which a styrylpyridinium group is attached. The composition also comprises a photopolymerization initiator (col. 9, lines 5-22) and a photocrosslinking agent (col. 10, lines 19-37) as relied upon above. Ichimura ('580)

does not teach that the photocrosslinking agent comprises an N-methylolated or N-alkoxymethylated nitrogen containing compound.

Additionally, Morigaki teaches a styrylpyridinium polymer and N-methylol(meth)acrylamide in a photosensitive composition (col. 9, lines 41-49). It would have been obvious to one of ordinary skill in the art to use N-methylol(meth)acrylamide in the composition of Ichimura to increase storage stability and improve sensitivity.

Response to Arguments

6. Applicant's arguments filed 5/18/2009, with respect to the rejection(s) of claim(s) 15-19, 21-24, 26, 28-29, 32-33 and 35-36 under 103(a), claims 15 and 25 under 103(a) and claims 15 and 20 under 103(a) have been fully considered and are persuasive. Therefore, the rejections have been withdrawn. However, upon further consideration, new ground(s) of rejection are made herein.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CONNIE P. JOHNSON whose telephone number is (571)272-7758. The examiner can normally be reached on 7:30am-4:00pm Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Connie P. Johnson
Examiner
Art Unit 1795

/Cynthia H Kelly/

Supervisory Patent Examiner, Art Unit 1795